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ABSTRACT

This article explores the interdisciplinary course offerings at 164 institutions that participated in a 1998 curriculum analysis by the Center for the Study of Community Colleges. It examines interdisciplinary courses in the context of the total curriculum, and discusses examples of existing interdisciplinary programs, the benefits and transferability of interdisciplinary coursework, and distance education. An interdisciplinary course is defined here as a course with at least two instructors from different departments, divisions, or specializations, in which the synthesis of ideas and perspectives takes place. Characteristics of an interdisciplinary course include: (1) innovative techniques; (2) incorporation of new concepts and methods between disciplines; (3) content that involves broad-based social issues requiring multiple disciplines for effective study; (4) avoidance of artificial disciplinary lines for a more realistic educational approach; and (5) a combination of liberal arts and general education with vocational education. Findings show that a majority of the institutions offer interdisciplinary courses in the humanities and the sciences, and slightly less than half offer interdisciplinary courses in the social sciences. In addition, most of these courses are transferable to four-year institutions, a benefit that may encourage their continuation, given the positive experiences reported by both students and faculty. Contains eight data tables and 14 references. (AS)

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Interdisciplinary Studies in the Community Colleges

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Interdisciplinary Studies in the Community Colleges

Most general education programs across the nation, in both community colleges and four-year institutions, use the distribution approach where students are permitted to choose courses from a list of applicable offerings in specified categories to fulfill the requirements (Astin, 1993; Cohen & Brawer, 1996; Smith, 1993). While this approach allows students to be exposed to many different courses and ways of thinking, it leaves a lot up to chance. Students often do not take courses in any coherent fashion and therefore they rarely see the connections from one course to another without specific guidance by faculty (Boyer, 1987; Gaff, 1995; Smith, 1993). It is up to faculty and administrators in institutions of higher education to formulate general education programs that make the coherence more obvious by integrating knowledge and creating a perspective that is more genuine (Boyer, 1987; Smith, 1993). One way to do this is to create interdisciplinary courses and curricula for our undergraduates. This article will look specifically at the interdisciplinary course offerings of the 164 institutions that participated in the 1998 curriculum study of the Center for the Study of Community Colleges (CSCC).

Interdisciplinary Study

An interdisciplinary course is often defined as a course with at least two instructors from different departments, divisions, or specializations, in which the synthesis of ideas and perspectives takes place (Davis, 1995; Hepner, 1996); Interdisciplinary courses are often characterized by:

- Being highly innovative (Davis, 1995; Hepner, 1996);

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- Incorporating new concepts and methods between disciplines (Clark & Wawrytko, 1990; Davis, 1995);
- Exploring content that involves broad based social issues requiring multiple disciplines for effective study (Davis, 1995; Garbowsky, 1995);
- Educating students in ways that are not bounded by artificial disciplinary lines that do not exist as such in the world outside higher education institutions (Jacobs & Teahen, 1996); and/or
- Combining liberal arts and general education with vocational education (Felton, 1996; Jacobs & Teahen, 1996).

These types of courses and curricula are particularly important in community colleges. Since community colleges' institutional missions include serving the community (i.e., students who drop in for a course or two, students who are there for vocational education, and students who are there for transfer purposes), understanding how interdisciplinary courses serve each of these populations is key. For the students who do not plan to continue with further formal education after their community college experience, interdisciplinary courses will broaden their educational experience, no matter how limited (Garbowsky, 1995). For students who are attending school for vocational education, interdisciplinary courses prepare them better for a high skilled, changing workplace since these courses require them to think about issues from multiple points of view. This will increase their ability to look at issues in the workplace from different perspectives (Jacobs & Teahen, 1996). No matter why a student initially attends a community college, these integrated courses may create a sense of community on campus, enhanced by the faculty joining one another to offer them. This in turn helps

motivate students in both academic and developmental courses since they feel they are a part of an academic community, which may actually encourage the continuation of their education (Felton, 1996; Jacobs & Teahen, 1996).

Benefits of Interdisciplinary Coursework

Jacobs and Teahen (1996) have found that those courses that combine liberal and general education curricula with vocational curricula at the community college, are correlated with an increased mastery of the competencies that are required for educational and vocational success. Additionally, there is an incorporation of moral, humanistic, and political perspectives into courses that are taken by vocational students in community colleges. These courses also re-energize the faculty involved (Felton, 1996; Jacobs & Teahen, 1996), and the instructor becomes a role model for life long learning (Felton, 1996). Finally, interdisciplinary courses also assist students with "intellectual and spiritual developments of the whole person" (Davis, 1995). Higher education purports to serve many functions, one being to educate students to be thoughtful citizens and future leaders of our country.

Examples of Existing Interdisciplinary Programs

With an understanding of what interdisciplinary courses and curricula try to do and why these tasks are important at community colleges, the next step is to look at six examples of general education programs that incorporate interdisciplinarity in their curriculum.

Shoreline Community College (Washington). Part of their core curriculum includes the integrated studies courses. An example of this is the Science, Civilization, and Human Creativity course. The criteria by which this course gained its "integrated studies" classification include the incorporation of multiple disciplines, integration from discipline to discipline, usage of different methodologies, and the inclusion of four skill areas (Rosenwasser, 1995).

Cuyahoga Community College (Ohio). One choice students have at this community college is a three-quarter, freshman-level course in classical philosophy and American literature. The two professors that teach the course have very different philosophical backgrounds and this serves to spark discussion. One professor introduces a topic and presents ideas while the second professor acts as a commentator, questioner, and even as the devil's advocate. This particular course has been successfully offered for 15 years (Davis, 1995).

Niagra County Community College (New York). This institution also offers interdisciplinary courses. One example is a course, taught by two faculty, that explores the visual, verbal, and performing arts. The focus of the two faculty members is to relate one art form to another (Davis, 1995).

Chemeketa Community College (Oregon). As part of a faculty development program, they have encouraged faculty to propose interdisciplinary courses. Many of their courses connect general education with technical and professional disciplines (Felton, 1996).

Macomb County Community College (Michigan). This college also incorporated general education curricula with occupational curricula. One such course was a business and

technical writing course designed by faculty from English, technology, and accounting disciplines. Other combinations include the following: nursing, health care ethics, and English; physics and English; and math, English, engineering, visual communications/commercial art, industry training, and business (Felton, 1996).

Lansing Community College (Michigan). At Lansing, 14 faculty members come together in four teams that boast the incorporation of as many disciplines and teaching techniques as possible. The following disciplines are represented: chemistry, physics, biology, geology, meteorology, and system dynamics. The courses are specifically organized around four basic questions that cause students to think about a question incorporating ideas from multiple disciplines (Davis, 1995).

While it is apparent that interdisciplinary courses are well worth the time for students and faculty alike, few studies have systematically investigated the *availability* of such courses on community college campuses.

Curriculum Study – Sample and Methods

The 1998 Curriculum Study collected data from a random selection of 164 community colleges across the nation. The sample includes 58 large (over 6,141 students) institutions (35.4 percent of the sample), 54 medium institutions (32.9 percent of the sample), and 52 small (less than 2,749 students) institutions (31.7 percent of the sample). This breakdown is fairly evenly distributed with about one-third of the sample in each category.

Each participating institution sent in one copy of their college catalog and one copy of their Spring 1998 schedule of classes. Using the course descriptions in the

catalogs, each course was coded into one of 80 subject areas and sub-areas (including the distinction between liberal arts and non-liberal arts), transferability, level (i.e., remedial or regular), and mode of instruction (i.e., traditional or distance). Through frequencies and percentages it is possible to tell a story about the current state of interdisciplinary courses in the community college curriculum.

This study focuses on three subject areas coded as "interdisciplinary": 1. Interdisciplinary Humanities; 2. Interdisciplinary Social Sciences; and 3. Integrated/Physical/General Sciences. The courses were placed in these categories based on two definitions: 1. the courses were labeled as interdisciplinary by the offering institution; and/or 2. the courses were described as spanning more than one academic discipline. One important caveat to the coding scheme is that number of faculty were not taken into consideration. Therefore, the courses coded as interdisciplinary do not necessarily meet all of the criteria of the formal definition of an "interdisciplinary course." Regardless, it is useful to see the patterns in which community colleges offer courses that span multiple disciplines as a first step toward true interdisciplinary course offerings.

Interdisciplinary Courses Across Institutions

All three sizes (small, medium, and large) of institutions offer interdisciplinary coursework (see Table 1). Twenty-one institutions (under 13 percent) in the sample do not offer any interdisciplinary courses at all. Of those institutions that do offer interdisciplinary courses, there is a tendency for more large-sized institutions to offer at least one course in any given area. However, slightly more medium-sized institutions (96

percent) offer interdisciplinary courses in all three measured areas (i.e., humanities, social sciences, and sciences) than either the small-sized (69 percent) or large-sized institutions (95 percent).

Table 1. Percentage of Colleges Providing Interdisciplinary Courses (N=164)

Interdisciplinary Subject Area	*Small*	*Medium*	*Large*	*All Sizes*
Interdisciplinary Humanities	17 (9)	65 (35)	74 (43)	53 (87)
Interdisciplinary Social Sciences	25 (13)	41 (22)	69 (40)	46 (75)
Integrated Sciences	48 (25)	50 (27)	64 (37)	54 (89)
All Interdisciplinary Subject Areas	69 (36)	96 (52)	95 (55)	87 (143)

Another way to look at the data on interdisciplinary courses by institution is to examine the number of courses offered by each institution. The following three tables summarize the number of institutions offering the specified number of interdisciplinary courses by subject area. Table 2a describes the breakdown of institutions offering interdisciplinary courses in the humanities. While 40 percent of the institutions do not offer any courses in this area, the other 60 percent offer between one and 88 courses, with the majority offering one to 20 courses. The two institutions offering the most interdisciplinary humanities courses (88 and 68) are both located in Florida. The vast majority of these courses fall into the "general" category; that is, they are not traditional "Great Books" courses. Only three institutions offer "Great Books" courses which cover the classics (often described as European masterpieces that have withstood the test of time).

The humanities seem to be the one area that occasionally makes use of the team-teaching approach in their interdisciplinary courses. For example, one institution in Missouri offers a course that focuses on Architecture, Science, and Society and draws together the main themes of a liberal arts education. The course considers the impact of

science, technology, and the humanities on societies over time, values and ethics, the future consequences of present policies, and the enjoyment and importance of both the arts and the sciences.

Even the interdisciplinary humanities courses that do not involve more than one faculty member still incorporate multiple disciplines such as literature, music, art, history, religion, and philosophy. Many of the courses explore the interconnectedness of these disciplines from multiple cultures and across time.

Table 2a. Percentage Institutions Offering Interdisciplinary Humanities Courses

Number of Courses Offered	*Number of Institutions*	*Percent of Institutions*
0	67	40.90
1	21	12.80
2 - 3	25	15.30
4 - 9	31	18.80
10 - 20	13	7.26
21 - 30	4	2.40
32	1	0.60
68	1	0.60
88	1	0.60

Table 2b shows interdisciplinary courses in the social sciences. In this category, 54 percent of the institutions do not offer any such courses. The rest of the institutions offer between one and 46 courses. The two institutions offering the most interdisciplinary social science courses (46 and 32) are in Iowa and California, respectively.

An example of such an interdisciplinary social science course is one taught in California on the psychological, biological, social, and cultural aspects of human sexuality. This course is team taught by two faculty. Other interdisciplinary courses in the social sciences, while not team-taught, cover areas such as film and society, or social

and political issues in the United States (bringing together disciplines such as history, anthropology, sociology, and social psychology).

Table 2b. Percentage of Institutions Offering Interdisciplinary Social Science Courses

Number of Courses Offered	*Number of Institutions*	*Percent of Institutions*
0	89	54.30
1	22	13.40
2 - 3	8	14.00
4 - 9	17	10.20
10 - 20	9	5.40
21 - 30	2	1.20
32	1	0.60
46	1	0.60

Table 2c shows that over half of the community colleges offer some sort of interdisciplinary course in the sciences, with a range of one to 20 sections. Some of these courses cover either a survey of physical sciences or a survey of life sciences, others look at topics that bridge the two. For example, one course offered at a community college in California looks at topics from physics, chemistry, astronomy, biology, genetics, the environment, and populations and their social implications.

Table 2c. Percentage of Institutions Offering Interdisciplinary Science Courses

Number of Courses Offered	*Number of Institutions*	*Percent of Institutions*
0	75	45.70
1	24	14.60
2 - 3	34	20.70
4 - 9	27	16.40
10 - 20	4	2.40

While many of the institutions offering interdisciplinary coursework teach only a handful of courses each semester, these courses can still be beneficial to the faculty and the students involved. Since community college faculty are hired specifically for their teaching, they are able to dedicate the necessary time and energy to creating and

implementing quality interdisciplinary courses. Yet, no matter how positive the outcomes of such a learning/teaching environment, it can never be expected that all, or even most, faculty will engage in this sort of enterprise due to the complexity and rigor of teaching such a course. Therefore, it is impressive to see a majority of institutions offering interdisciplinary humanities courses, more than half of the institutions offering interdisciplinary science courses and almost half of the institutions offering interdisciplinary social science courses.

Interdisciplinary Courses and the Total Curriculum

Interdisciplinary courses consist of one percent of the total community college curriculum and just under two percent of the liberal arts curriculum. Comparing interdisciplinary courses in the three areas of study helps to define the breakdown further. The 716 interdisciplinary humanities courses comprise four percent of the total humanities courses. The 440 interdisciplinary social science courses comprise five percent of the total social science courses. Finally, the 305 interdisciplinary science courses comprise three percent of the total science courses. While these percentages appear to be quite small, it is impressive that community college faculty choose to mount these types of courses at all since they tend to take a great deal more work than a typical, single discipline course. As interdisciplinary courses become more popular, more courses in the social sciences may appear, as there are many possibilities for socially relevant courses in this area that will be of great interest to students.

Transferability of Courses

Course transferability was coded for those courses that counted toward a transferable associate's degree. However, some college catalogs were not clear on this particular issue, so course transferability is open to interpretation in some cases. Ninety-one percent of the interdisciplinary courses are transferable to a four-year public institution in the area. Overall, it is clear that four-year institutions are accepting the transfer of interdisciplinary courses which tells students and faculty alike that this is an acceptable form of coursework beyond the community college. The presence of an increasing number of transferable interdisciplinary courses also points to an increasing acceptability of this sort of course.

Distance Courses

A total of 56 interdisciplinary courses were offered as distance courses, including television courses, internet courses, and courses taught at remote locations via video. The offerings ranged from one to four courses per campus, of the 33 institutions that offered these. This is particularly exciting since interdisciplinary teaching through distance education is an emerging area of interest. Internet courses, specifically, allow innovative faculty from multiple campuses to work together to create interdisciplinary courses. While the cost of such courses are often an issue for institutions, this combination of faculty, and therefore resources, allows the cost to be distributed across community colleges (Davis, 1995). These types of interdisciplinary courses will probably bloom as distance courses in general become more popular in the upcoming years (Blumenstyk,

1999). In fact, there is currently a Community College Distance Learning Network, involving eight community colleges across the nation (1999).

Interdisciplinary Course Offerings: A Comparison Between 1991 and 1998

In order to make statements about how interdisciplinary course offerings have changed over time, it is necessary to compare the data from the 1998 Curriculum Study to the data from the 1991 Curriculum Study. Of the 164 institutions in the 1998 sample, 59 institutions remained the same. The discussion that follows looks specifically at the 59 constant institutions.

The mean number of interdisciplinary courses offered per institution increased from 3.75 courses per institution to 4.84 courses per institution. This comparison implies that each institution added just over one interdisciplinary course, on average, over the last seven years. The biggest change in average number of course offerings is in the humanities. The smallest change in average number of course offerings is in the sciences as seen in Table 3. While the number of interdisciplinary humanities and social sciences courses *increased* the number of interdisciplinary science courses actually *decreased.*

Table 3: Average Number of Institutional Interdisciplinary Course Offerings

	1991	*1998*
Humanities	4.67	6.64
Social Sciences	2.77	4.15
Sciences	3.81	3.74
Total	3.75	4.84

Breaking these data down further, it is possible to see how the institutional offerings differed from the 1991 study to the 1998 study. Table 4a describes the institutions and the breakdown of the humanities courses. The largest percent increase

was in the four-to-nine-course range, as four more institutions were placed in that category in 1998. Additionally, the number and percentage of institutions that offered no interdisciplinary humanities courses decreased over the last seven years. The total number of interdisciplinary humanities courses went from 169 to 219 which is a 23 percent increase.

Table 4a: Percentage of Institutions Offering Interdisciplinary Humanities Courses (N=59)

Number of Courses	*1991*	*1998*
0	50.8 (30)	44.1 (26)
1	10.2 (6)	11.9 (7)
2-3	10.2 (6)	8.5 (5)
4-9	17 (10)	23.7 (14)
10-20	11.9 (7)	8.5 (5)
23	0	1.7 (1)
32	0	1.7 (1)

Table 4b describes the institutions and the breakdown of the social science courses. The number of institutions offering interdisciplinary courses increased in each category delineated below. The only categorical decrease was in the number of institutions that did *not* offer any interdisciplinary courses in the social sciences. The total number of interdisciplinary social science courses went from 97 to 108 which is an increase of 10 percent.

Table 4b: Percentage of Institutions Offering Interdisciplinary Social Science Courses (N=59)

Number of Courses	*1991*	*1998*
0	64.4 (38)	55.9 (33)
1	11.9 (7)	15.3 (9)
2-3	10.2 (6)	15.3 (9)
4-9	8.5 (5)	6.8 (4)
10-20	5.1 (3)	6.8 (4)

A description of the institutional breakdown of the science courses can be seen in Table 4c. This is the only area in which the number of institutions offering interdisciplinary courses actually *decreases*. Perhaps this decrease in interdisciplinary science courses has occurred because interdisciplinarity often means greater complexity in terms of cerebral processing, and science courses are often already difficult for students who do not plan to major in the sciences. The total number of interdisciplinary science courses went from 120 to 101 which is a 16 percent decrease.

Table 4c: Percentage of Institutions Offering Interdisciplinary Science Courses (N=59)

Number of Courses	*1991*	*1998*
0	47.5 (28)	54.2 (32)
1	15.3 (9)	13.6 (8)
2-3	17 (10)	15.3 (9)
4-9	13.6 (8)	13.6 (8)
10-20	6.8 (4)	3.4 (2)

The differences in interdisciplinary course offerings are real and increasing in each area except for science, and increasing overall nonetheless. The humanities and social sciences may lend themselves more readily to interdisciplinary work because students may not need as fundamental a foundation in these areas (as compared to the natural sciences) in order to make sense of the material. Additionally, some of the courses that may have some science component, but deal with the social consequences or social impact tended to show up in catalogs under "social science" areas and were coded as such. The total number of interdisciplinary courses across all three areas (i.e., humanities, social sciences, and sciences) went from 386 to 428 in the 59 institutions. This accounts for a total increase in interdisciplinary course offerings by 10 percent.

Summary

This article reports the findings regarding interdisciplinary courses from the most recent study of the curriculum in American community colleges. Findings show that small, medium, and large institutions all offer interdisciplinary curricula. A majority of institutions offer interdisciplinary courses in the humanities, slightly less than half of the institutions offer interdisciplinary courses in the social sciences, and slightly more than half of the institutions offer interdisciplinary courses in the sciences. While only one percent of the total community college curriculum takes the form of interdisciplinary courses, between three and five percent of the specific subject areas (i.e., humanities, social sciences, and sciences) take the form of interdisciplinary courses. Most of the interdisciplinary courses are transferable to four-year institutions. This transferability along with the emergence of distance courses will encourage faculty to continue to teach interdisciplinary courses given the positive experiences reported for both students and faculty. Over the last seven years the number of interdisciplinary courses in the natural sciences has decreased slightly, but overall, the number of interdisciplinary courses have actually increased by 10 percent.

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